

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Original) A loudspeaker system comprising:
 - at least one electroacoustical transducer for converting an input electrical signal into corresponding acoustic output;
 - an enclosure divided into at least first, second and third subchambers by at least first and second dividing walls;
 - said first dividing wall supporting and coacting with said at least one electroacoustical transducer to bound said first and said second subchambers, at least one passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling said second and third subchambers;
 - at least a second passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling at least one of said second and third subchambers with the region outside said enclosure;
 - at least a third passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling said first and second subchambers;
 - each of said subchambers having the characterization of acoustic compliance;
 - said first and second passive acoustic radiator masses interacting with second and third subchamber compliances to form two Helmholtz-reflex tunings at two spaced frequencies in the passband of said loudspeaker;
 - said at least a third passive acoustic radiator intercoupling said first and second subchambers to form a third Helmholtz-reflex tuning at a frequency lower than that of said first and second passive acoustic radiators.
2. (Original) The loudspeaker of claim 1 wherein said passive acoustic radiators have the characteristic of acoustic mass and are selected from the group consisting of vents, ports, and suspended passive diaphragms.
3. (Original) The loudspeaker of claim 1 wherein said at least a second passive

acoustic radiator intercouples said third subchamber with the region outside said enclosure.

4. (Original) The loudspeaker of claim 1 wherein said at least a second passive acoustic radiator intercouples said second subchamber with the region outside said enclosure.

5. (Previously Presented) The loudspeaker of claim 4 wherein at least a fourth passive acoustic radiator intercouples said third subchamber with the region outside said enclosure.

6. (Original) A loudspeaker system comprising: at least one electroacoustical transducer for converting an input electrical signal into corresponding acoustic output; an enclosure divided into at least first, second, third, and fourth subchambers by at least first, second, and third dividing walls; said first dividing wall supporting and coacting with said at least one electroacoustical transducer to bound said first and said second subchambers; at least one passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling said second and third subchambers; at least a second passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling at least one of said second, third, or fourth subchambers with the region outside said enclosure; at least a third passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling said first and second subchambers; each of said subchambers having the characterization of acoustic compliance; said passive acoustic radiator masses interacting with first, second, third, and fourth subchamber compliances to form four Helmholtz-reflex tunings at four spaced frequencies in the passband of said loudspeaker.

7. (Original) The loudspeaker of claim 6 wherein said passive acoustic radiators have the characteristic of acoustic mass and are selected from the group consisting of vents,

ports, and suspended passive diaphragms.

8. (Previously Presented) A loudspeaker system comprising:
 - at least one electroacoustical transducer for converting an input electrical signal into a corresponding acoustic output;
 - an enclosure divided into (n) number of subchambers by at least n-1 number of dividing walls with [[n=3]] $n \geq 3$;
 - a first dividing wall supporting and coacting with said at least one electroacoustical transducer to bound a first (n1) and a second (n2) subchamber;
 - at least one primary passive acoustic radiator designed to realize a predetermined acoustic mass and intercoupling said first (n1) and second (n2) subchambers;
 - at least one secondary passive acoustic radiator specifically designed to realize a predetermined acoustic mass and coupling each subchamber other than said first (n1) subchamber to another subchamber;
 - at least one tertiary passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling at least one of said subchambers, other than said first (n1) subchamber, to the region outside said enclosure;
 - each of said subchambers having the characterization of acoustic compliance;
 - said passive acoustic radiator masses interacting with subchamber compliances to form a total of (n) Helmholtz-reflex acoustic filters, and wherein the output of said at least one electroacoustic transducer and said at least one primary passive acoustic radiator must pass through at least n-1 of said acoustic filters before exiting the enclosure.

9. (Original) The loudspeaker of claim 8 wherein said passive acoustic radiators have the characteristic of acoustic mass and are selected from the group consisting of vents, ports, and suspended passive diaphragms.

10. (Currently Amended) A loudspeaker system comprising:
 - at least one electroacoustical transducer having a vibratable diaphragm for

converting an input electrical signal into a corresponding acoustic output signal;

an enclosure divided into at least first, second and third subchambers by at least first and second dividing walls;

said first dividing wall supporting and coacting with said first electroacoustical transducer to bound said first and said second subchambers;

at least a first passive radiator specifically designed to realize a predetermined acoustic mass and intercoupling said second and third subchambers;

at least a second passive radiator specifically designed to realize a predetermined acoustic mass and intercoupling at least one of said second and third subchambers with the region outside said enclosure;

at least a third passive radiator specifically designed to realize a predetermined acoustic mass and intercoupling said first and second subchambers;

each of said subchambers characterized by acoustic compliance; said passive acoustic radiator masses and said acoustic compliances selected to establish three spaced frequencies in the passband of said loudspeaker system at which the deflection characteristic of said vibratable diaphragm as a function of frequency ~~has-is~~ a minimum.

11. (Previously Presented) The loudspeaker of claim 10 wherein each of said passive acoustic radiators has the characteristic of acoustic mass and is selected from the group consisting of vents, ports, and suspended passive diaphragms.

12. (Previously Presented) The loudspeaker of claim 11 further comprising a passive acoustic radiator that intercouples said third subchamber with the region outside said enclosure.

13. (Canceled)

14. (Previously Presented) The loudspeaker of claim 13 further comprising a passive acoustic radiator that intercouples said third subchamber with the region outside said enclosure.

15. (Currently Amended) A loudspeaker system comprising:

at least one electroacoustical transducer having a vibratable diaphragm for converting an input electrical signal into a corresponding acoustic output signal;

an enclosure divided into at least first, second, third and fourth subchambers by at least first, second and third dividing walls;

said first dividing wall supporting and coacting with said at least one electroacoustical transducer to bound said first and said second subchambers;

at least one passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling said second and third subchambers;

at least one additional passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling said third and fourth subchambers;

at least a second additional passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling at least one of said second, third, or fourth subchambers with the region outside said enclosure; at least a third additional passive acoustic radiator specifically designed to realize a predetermined acoustic mass and intercoupling said first and second subchambers;

each of said subchambers having the characterization of acoustic compliance;

said passive acoustic radiator masses and said acoustic compliances selected to also establish at least four spaced frequencies in a passband of said loudspeaker system at which the deflection characteristic of said vibratable diaphragm as a function of frequency ~~has-is~~ a minimum.

16. (Original) The loudspeaker of claim 15 wherein said passive acoustic radiator has the characteristic of acoustic mass and being selected from the group consisting of vents, ports, and suspended passive diaphragms.

17. (Original) The loudspeaker of claim 1 wherein at least a second of said at least one electroacoustical transducer is supported by and coacts with said first dividing wall such that said electroacoustical transducers bound said first and said second subchambers.

18. (Original) The loudspeaker in claim 17 wherein said electroacoustical transducers are mounted in an mechanical-acoustical parallel arrangement.

19. (Original) The loudspeaker in claim 17 wherein said electroacoustical transducers are mounted in an mechanical-acoustical series arrangement.

20. (Previously Presented) The loudspeaker claim 17, wherein said electroacoustical transducers are mounted in one of a) a mechanical-acoustical parallel arrangement and b) a mechanical-acoustical series arrangement, and wherein each of said electroacoustical transducers are adapted to receive said electrical input signal from separate amplifier channels.

21. – 24. (Canceled)

25. (Previously Presented) The loudspeaker of claim 1 wherein:
said enclosure has outer side walls which bound said enclosure to the outside environment;

the enclosure further comprising a passive acoustic radiator comprising at least one compliant sheet that intercouples said third subchamber through at least one of said outer side walls to the region outside said enclosure.

26. (Original) The loudspeaker of claim 25 wherein said at least one compliant sheet intercouples said third subchamber through two of said outer side walls to the region outside said enclosure.

27. (Original) The loudspeaker of claim 25 wherein said at least one compliant sheet intercouples said third subchamber through three of said outer side walls to the region outside said enclosure.

28. (Original) The loudspeaker of claim 25 wherein said at least one compliant sheet intercouples said third subchamber through four of said outer side walls to the region outside said enclosure.

29. (Original) The loudspeaker of claim 25 wherein said at least one compliant sheet substantially forms at least one of the outer sidewalls.

30. (Original) The loudspeaker of claim 25 wherein said at least one compliant sheet substantially forms two of the outer sidewalls.

31. (Original) The loudspeaker of claim 25 wherein said at least one compliant sheet substantially forms three of the outer sidewalls.

32. (Original) The loudspeaker of claim 25 wherein said at least one compliant sheet substantially forms four of the outer sidewalls.

33. – 35. (Canceled)